



BASIC SKILLS COMPETENCY TEST

Mathematics Section 2 2002 Released Form



DO NOT OPEN THIS BOOKLET
UNTIL YOU ARE TOLD TO DO SO.

U-PASS

Utah Performance Assessment System for Students


GENERAL DIRECTIONS

The Mathematics subtest of the Utah Basic Skills Competency Test has two sections.

Section 2: Calculator



You may use a calculator for this section of the test. If you do not have a calculator and need one, raise your hand and the test administrator will provide a calculator for you. When you have completed this section of the test, you may review your answers for this section only. You may not review your answers from Section 1.

Work quickly and carefully and you will have enough time to answer all of the questions. When you reach the , you have reached the end of the section. If you finish all of the questions in a test section early, you may check your work in that test section **only**. Do not look at the questions in any other section.

Read each question carefully. If you do not know the answer to a question, go on to other questions in the same section and return to the unanswered question later. If you skip a question, make sure that you leave the corresponding answer circle blank on your answer sheet.

Multiple-choice questions require you to choose the **best** answer from four answer choices. After you choose an answer, fill in the circle for your answer in the space provided on your answer sheet. Mark only one answer to each question. No credit will be given for multiple marks. If you wish to change an answer, erase the old mark completely before marking a new one.

You will have a formula sheet to help you answer questions. Please do all your work in the test booklet.

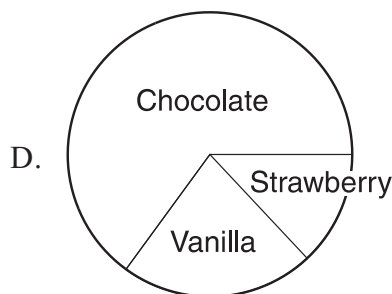
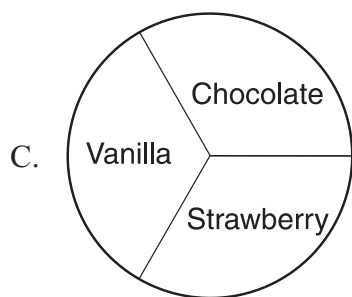
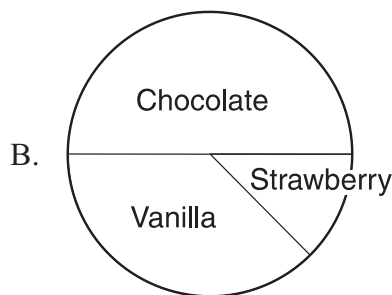
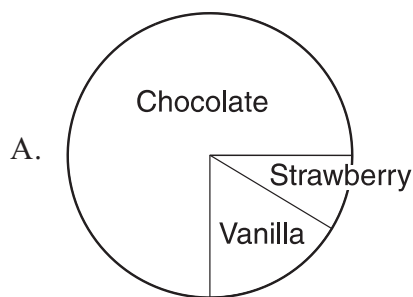


SECTION 2

Directions: Choose the best answer for each multiple-choice question. Then mark the space for the answer you have chosen on your answer sheet.

36. At Mercurio's Ice Cream Shop, 65% of all milk shakes sold are chocolate, 22% are vanilla, and 13% are strawberry.

Which pie graph represents the numbers of different milk shakes sold?



37. In a random sample of workers at Jensen Manufacturing, 3 out of 12 people reported that they exercise regularly. Which decimal represents the probability that a randomly selected person at Jensen Manufacturing exercises regularly?

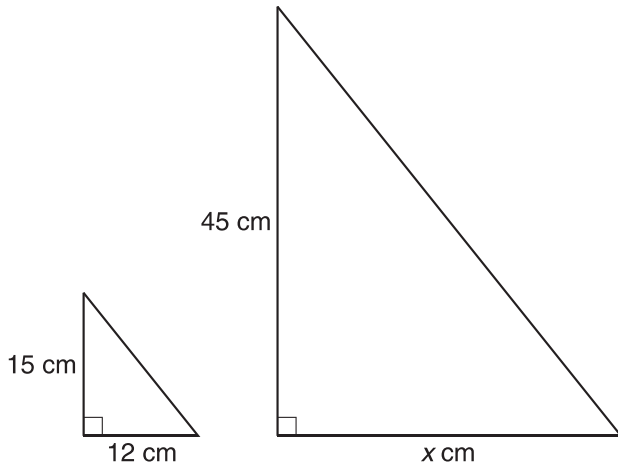
A. 0.12
B. 0.25
C. 0.3
D. 0.4

38. Simplify this expression:

$$12 - 9(2 \times 25)$$

A. -462
B. -438
C. 150
D. 888

Use the triangles below to answer question 39.



39. If the two triangles are similar, what is the value of x ?
- A. 36
 - B. 42
 - C. 48
 - D. 60

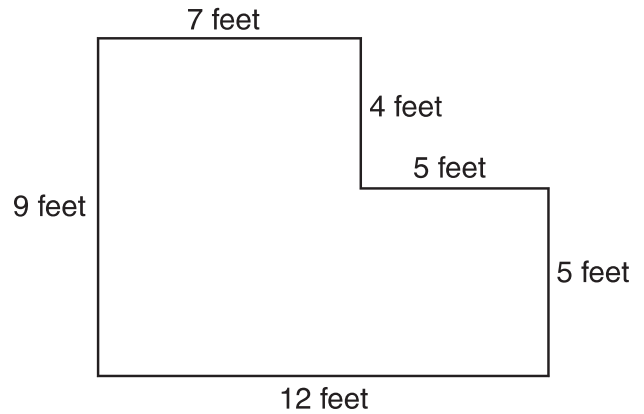
40. Five weather stations reported the rainfall totals shown below during a 24-hour period.

Rainfall Totals	
Station	Rainfall
Station A	0.52 cm
Station B	0.47 cm
Station C	0.36 cm
Station D	0.52 cm
Station E	0.48 cm

What is the **range** of rainfall totals reported by these weather stations?

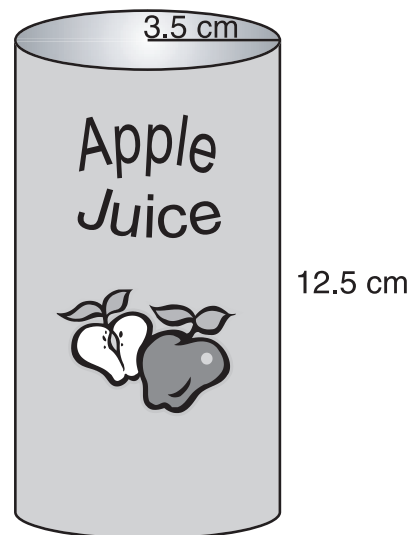
- A. 0.04 cm
- B. 0.16 cm
- C. 0.36 cm
- D. 0.52 cm

Use the figure below to answer question 41.



41. What is the area of this figure?
- A. 42 square feet
 - B. 42 cubic feet
 - C. 88 square feet
 - D. 88 cubic feet

Use the figure below to answer question 42.



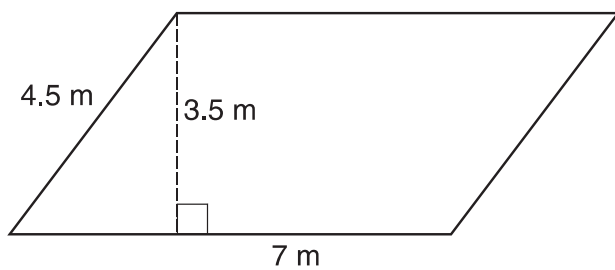
42. What is the volume of this can of juice to the nearest cubic centimeter?
- A. 153 cm^3
 - B. 275 cm^3
 - C. 481 cm^3
 - D. 1,924 cm^3

43. Simplify the following expression:

$$6x^2 + 2x^2$$

- A. $8x^2$
- B. $8x^4$
- C. $12x^2$
- D. $12x^4$

Use the parallelogram below to answer question 44.



44. What is the **perimeter** of this parallelogram?

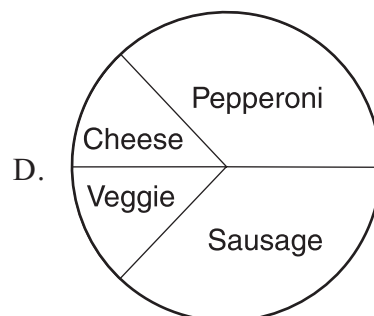
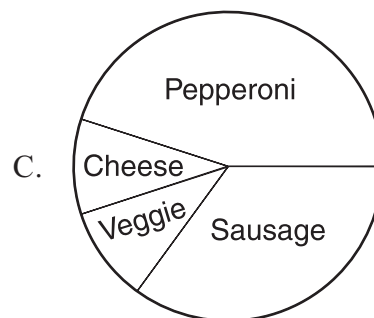
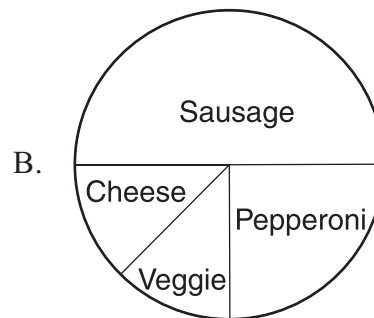
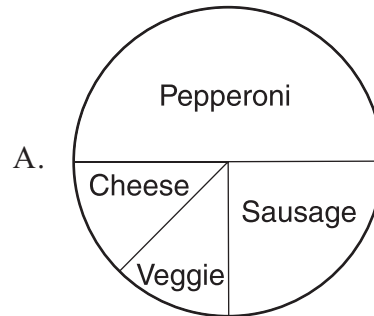
- A. 15 m
- B. 22.5 m
- C. 23 m
- D. 24.5 m

Use the table below to answer question 45.

Types of Pizza Sold at House of Pizza

Pepperoni	45%
Sausage	35%
Cheese	10%
Veggie	10%

45. Which graph shows the data from the table?



46. The table below lists the daily noontime temperature for a certain week.

Daily Noontime Temperature

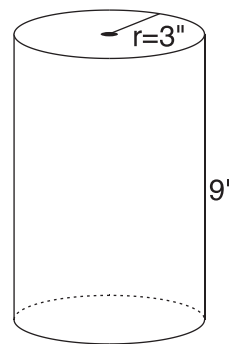
Day	Noontime Temperature (°F)
Sunday	71°
Monday	64°
Tuesday	69°
Wednesday	73°
Thursday	64°
Friday	70°
Saturday	72°

What was the **range** of noontime temperatures for this week?

- A. 1°
B. 2°
C. 8°
D. 9°
47. Eight envelopes contain a \$10 gift certificate and two contain a \$100 gift certificate. In a random drawing, what is the probability of drawing an envelope with a \$100 gift certificate?
- A. $\frac{1}{10}$
B. $\frac{1}{8}$
C. $\frac{1}{5}$
D. $\frac{1}{4}$

48. If two triangles are similar, which statement must be true?
- A. The areas of the triangles are equal.
B. The perimeters of the triangles are equal.
C. The corresponding sides of the triangles are congruent.
D. The corresponding angles of the triangles are congruent.

Use the figure below to answer question 49.



49. What is the volume of the figure?
- A. 9π
B. 27π
C. 81π
D. 162π

50. The table below lists the daily noontime temperature for a certain week.

Daily Noontime Temperature

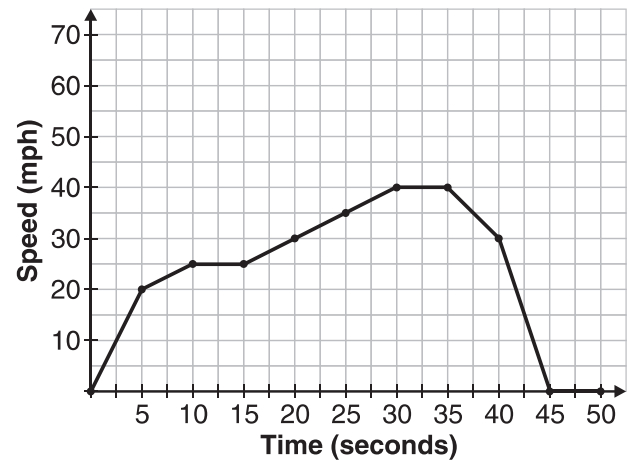
Day	Noontime Temperature (°F)
Sunday	75°
Monday	64°
Tuesday	66°
Wednesday	73°
Thursday	64°
Friday	71°
Saturday	70°

What was the **median** noontime temperature for this week?

- A. 64°
 - B. 69°
 - C. 70°
 - D. 73°
51. In a quality-control sample, a manufacturer found that 20 out of every 864 computer chips produced were defective. What is the probability that a computer chip from this manufacturer will be defective?
- A. 0.017
 - B. 0.023
 - C. 0.043
 - D. 0.086

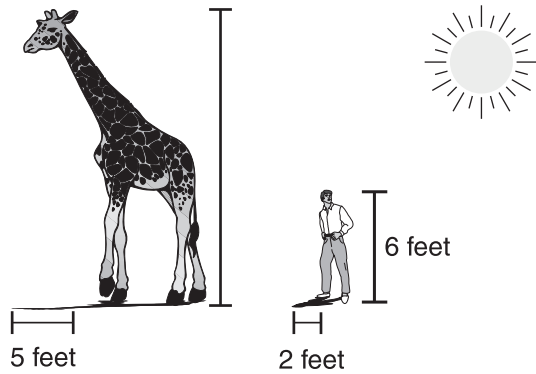
Use the graph below to answer question 52.

Adrian's Driving Speed



52. This graph shows Adrian's driving speed for 45 seconds. During which period was the overall **increase** in Adrian's speed greatest?
- A. 0–5 seconds
 - B. 15–20 seconds
 - C. 30–35 seconds
 - D. 40–45 seconds
53. A rectangular-shaped kitchen measures 18 feet long and 12 feet wide. What is the area of the floor of this kitchen?
- A. 60 cubic feet
 - B. 60 square feet
 - C. 216 square feet
 - D. 216 cubic feet

Use the picture below to answer question 54.



54. While at the zoo, Alan cast a 2-foot shadow at the same time a giraffe cast a 5-foot shadow. If Alan is 6 feet tall, how tall is the giraffe?

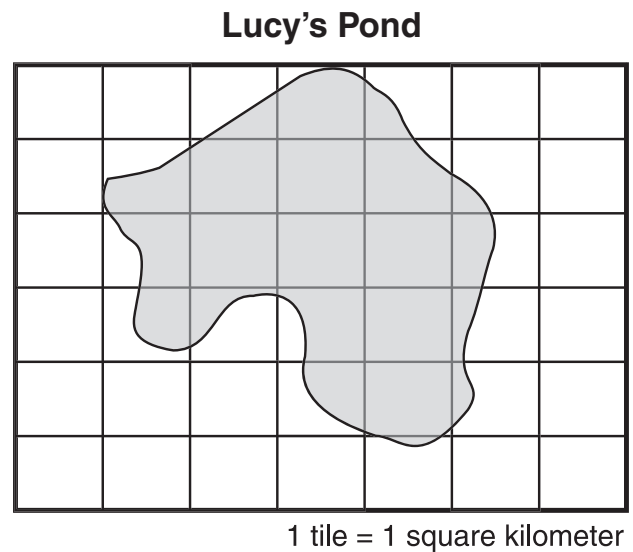
A. 12 feet
B. 15 feet
C. 18 feet
D. 20 feet

55. Simplify the following expression:

$$8x^5 - 4x^5$$

A. 4
B. $4x$
C. $4x^4$
D. $4x^5$

Use the diagram below to answer question 56.



56. Lucy wants to treat her pond for mosquitoes. What is the best estimate of the area of her pond?

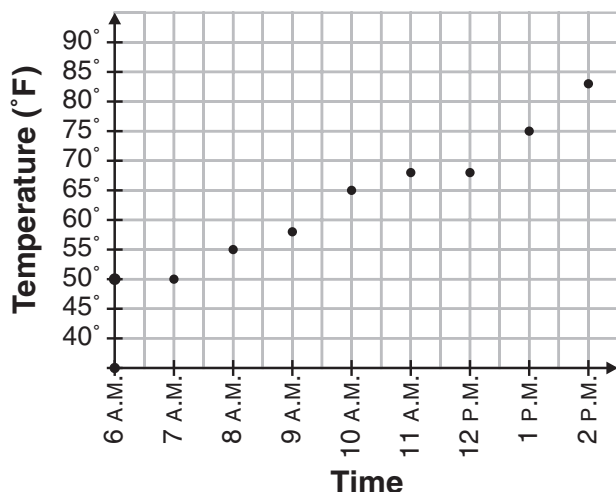
A. 12 sq. km
B. 18 sq. km
C. 24 sq. km
D. 30 sq. km

57. Simplify this expression:

$$\frac{8 + 6 \times 2}{4}$$

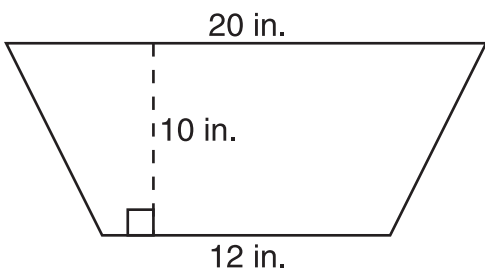
A. 4
B. 5
C. 7
D. 14

Use the graph below to answer question 58.



58. Based on the data shown in this graph, which of the following is the best estimate of the temperature at 9:30 A.M.?
- A. 58°
 - B. 62°
 - C. 68°
 - D. 72°

Use the trapezoid below to answer question 59.



59. What is the area of this trapezoid?
- A. 52 sq. in.
 - B. 80 sq. in.
 - C. 160 sq. in.
 - D. 320 sq. in.

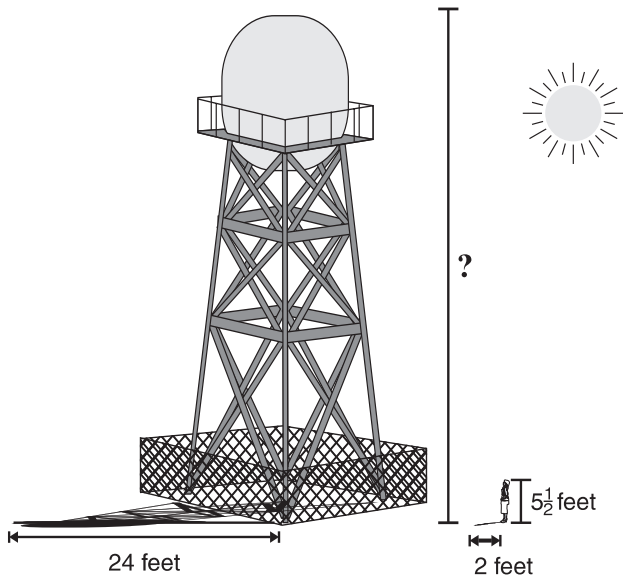
Use the tally below to answer question 60.

Number of Students Who Drove to School

Yes	
No	

60. Some randomly selected students were asked if they drove to school. Based on these data, what is the probability that a randomly selected student drove to school?
- A. $\frac{1}{25}$
 - B. $\frac{8}{17}$
 - C. $\frac{17}{8}$
 - D. $\frac{17}{25}$
61. What is the **median** of the following set of values?
- {4, 2, 3, 8, 2, 7, 2}
- A. 2
 - B. 3
 - C. 4
 - D. 8

Use the picture below to answer question 62.



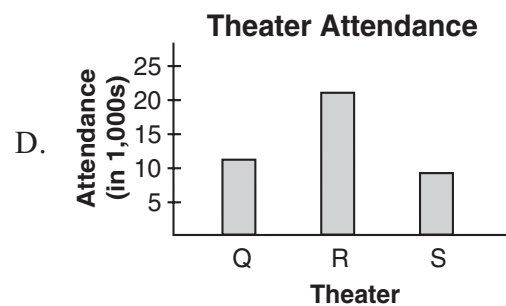
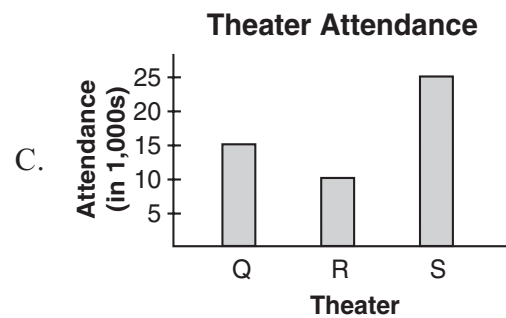
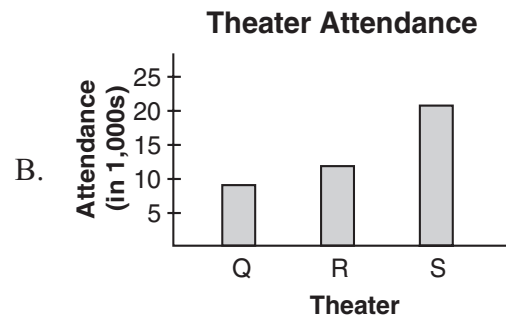
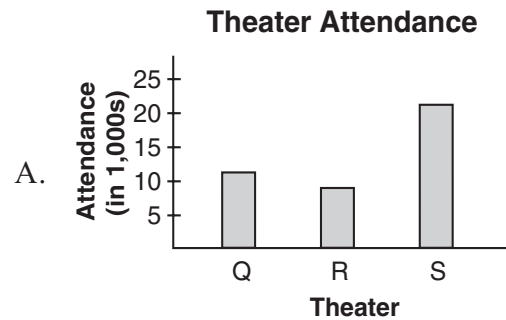
62. Maggie wants to know the height of the city water tower. Her shadow was 2 feet long at the same time the water tower cast a 24-foot shadow. If Maggie is $5\frac{1}{2}$ feet tall, how tall is the water tower?
- A. 66 feet
 - B. 88 feet
 - C. 132 feet
 - D. 264 feet

63. Three local theaters reported the following attendance for last Friday.

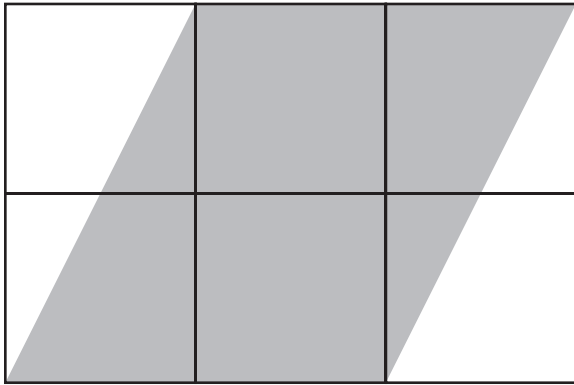
Theater Attendance

Theater Q	10,542
Theater R	8,310
Theater S	21,511

In which of the following bar graphs are these data correctly represented?

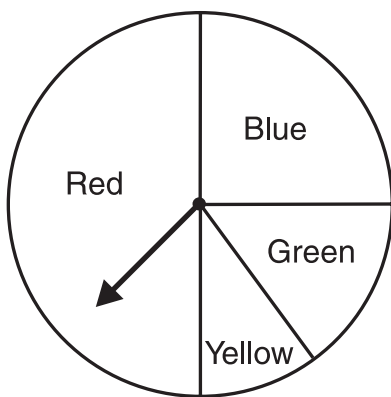


Use the figure below to answer question 64.



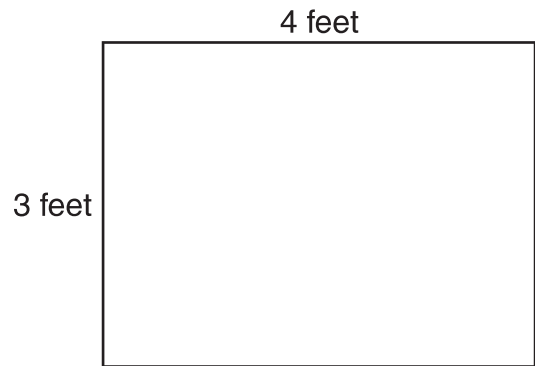
64. Each square in the figure measures one square inch. What is the area of the shaded portion of the figure?
- A. 5 square inches
 - B. 5 cubic inches
 - C. 4 cubic inches
 - D. 4 square inches

Use the spinner shown below to answer question 65.



65. What is the probability of the spinner landing on blue?
- A. 12.5%
 - B. 25%
 - C. 50%
 - D. 90%

Use the rectangle below to answer question 66.



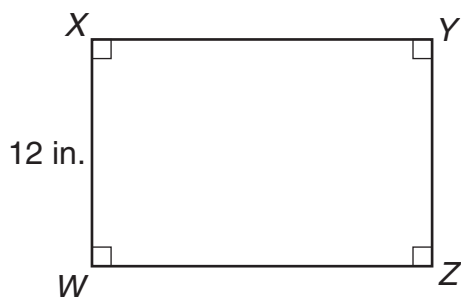
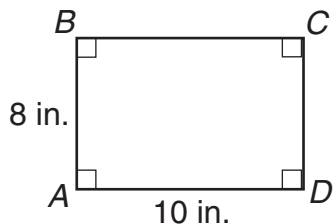
66. What is the area of the rectangle?
- A. 14 feet
 - B. 14 square feet
 - C. 12 feet
 - D. 12 square feet

67. Simplify the following expression:

$$\frac{8x^4}{2x}$$

- A. $4x^3$
- B. $4x^4$
- C. $6x^3$
- D. $6x^4$

Use the rectangles below to answer question 68.



68. Rectangle $ABCD$ is similar to rectangle $WXYZ$. What is the length of \overline{WZ} ?
- A. 10 in.
 B. 14 in.
 C. 15 in.
 D. 24 in.
69. Five weather stations reported the rainfall totals shown below during a 24-hour period.

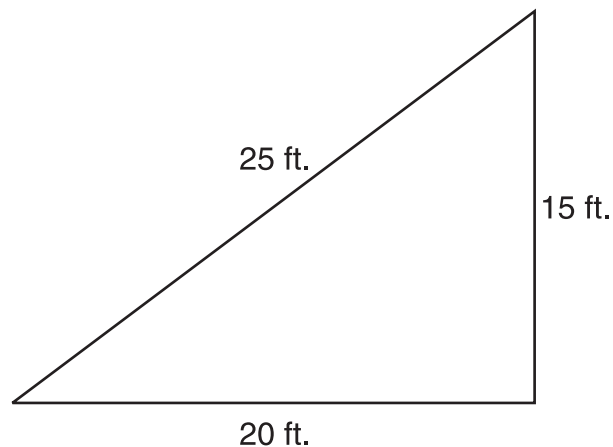
Rainfall Totals

Station A	0.54 cm
Station B	0.49 cm
Station C	0.38 cm
Station D	0.54 cm
Station E	0.50 cm

What is the **mean** rainfall for the five weather stations?

- A. 0.38 cm
 B. 0.49 cm
 C. 0.50 cm
 D. 0.54 cm

Use the figure below to answer question 70.



70. Historical Park has the triangular flower bed shown above. What is its **area**?
- A. 150 sq. ft.
 B. 188 sq. ft.
 C. 250 sq. ft.
 D. 300 sq. ft.



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